Application for Locally Adopted Energy Standards by the Sonoma County In Accordance With Section 10-106 of the California Code of Regulations, Title 24, Part 1

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1.0 Executive Summary

The Sonoma County Board of Supervisors approved its Green Building Ordinance on July 21, 2009. This is a new ordinance which is scheduled to take effect on January 1, 2010. Gabel Associates has researched and reviewed the feasibility and energy cost-effectiveness of permit applicants exceeding the state's 2008 Building Energy Efficiency Standards in order to meet the minimum energy efficiency requirements of the proposed ordinance.

Overall Scope of the Ordinance

New ordinance or revision to previous ordinance?	New Ordinance
Projected Effective Date:	January 1, 2010
Green building or stand-alone energy ordinance?	Green Building Ordinance
Do minimum energy requirements increase after initial effective date?	No
Occupancies covered?	All New Residential Buildings
Energy requirements apply to new construction, additions, alterations?	New Construction Only
Special or unusual energy requirements?	No
Third party verification?	No
Implementation details in the ordinance or in a separate document?	None

Key Features of the Ordinance By Occupancy Type

Occupancy Type	General Requirements	Minimum Energy Requirement
New Low-rise and High-rise Residential Buildings	2008-2011 GreenPoint Rated	15% Better-than-Title 24

2.0 Impacts of the New Ordinance

The energy performance impacts of the Ordinance have been evaluated using several case studies which collectively reflect a broad range of building types.

- Single family house: 2-story 2,025 sf
- Single family house: 2-story 2,682 sf
- Low-rise Multi-family building, 8 dwelling units: 2-story 8,442 sf
- High-rise Multi-family building, 40 dwelling units: 4-story 36,800 sf

The methodology used in the case studies is based on the way that real buildings are designed and evaluated to meet or exceed the energy standards.

(a) Each prototype building design is tested for compliance with the 2008 Standards, and all energy measures are adjusted with common construction options to just barely meet the Standards. The energy measures chosen are a combination of measures which reflects how designers, builders and developers are likely to achieve a specified level of performance.

(b) Starting with a 2008 Standards minimally compliant set of measures, various items are changed to just reach the minimum energy performance required by the Ordinance (e.g, 15% better than 2008 Title 24). In this study, the design choices are based on many years of experience with architects, mechanical engineers and builders and general knowledge of the relative incremental costs of most measures. The intent of this approach is for the study to reflect how building energy performance is actually studied and used to select final energy measures.

(c) A minimum and maximum range of incremental costs of added energy measures is established by a variety of research means. A construction cost estimator, Building Advisory LLC, was contracted to conduct research and surveys to obtain accurate and current measure cost information. Site energy in KWh and Therms, is calculated for each run to establish the annual energy savings, energy cost savings and CO2-equivalent reductions in greenhouse gases.

2.1 Single Family Homes

Energy design descriptions of the single family building prototypes which just meet the 2008 Title 24 Building Energy Efficiency Standards:

Single Family House: 2,025 square feet, 2-story, 20.2% glazing/floor area ratio

Energy Efficiency Measures
R-38 Roof w/ Radiant Barrier
R-13 Walls
R-0 Slab on Grade
R-19 Raised Floor over Garage/Open at 2nd Floor
Low E2 Vinyl Windows, U=0.36, SHGC=0.30
Furnace: 80% AFUE
Air Conditioner: 13 SEER
R-6 Attic Ducts
Reduced Duct Leakage/Testing (HERS)
50 Gallon Gas Water Heater: EF=0.60

Single Family House: 2,682 square feet, 2-story, 21.1% glazing/floor area ratio

Energy Efficiency Measures
R-30 Roof w/ Radiant Barrier
R-13 Walls
R-19 Raised Floor
Low E2 Vinyl Windows, U=0.36, SHGC=0.30
Furnace: 80% AFUE
Air Conditioner: 13 SEER
R-6 Attic Ducts
Reduced Duct Leakage/Testing (HERS)
50 Gallon Gas Water Heaters: EF=0.60

Energy Measures Needed to Meet the County's Ordinance

The following energy features have been modified from the Title 24 set of measures so that the house design uses 15% less TDV energy than the corresponding Title 24 base case design per the 2008-2011 GreenPoint Rated minimum energy requirement. The incremental first cost to provide that measure in comparison with the equivalent base case measure is listed to the right.

The incremental energy improvements specified above to meet the proposed Ordinance requirements are variables selected by designer, builder or owner. There are a number of considerations in choosing the final mix of energy measures including first cost, aesthetics, maintenance and replacement.

15% Better Than Title 24 Base Case, Option 1 **2025 sf** **Climate Zone 2**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-19 Walls (from R-13): 2,550 sf @ $0.55 to $0.85/sf	Upgrade	$ 1,403	$ 2,168	$ 1,786
R-0 Slab on Grade	-	$ -	$ -	$ -
R-19 Raised Floor over Garage/Open at 2nd Floor	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
Furnace: 80% AFUE	-	$ -	$ -	$ -
Air Conditioner: 13 SEER, 11 EER (HERS)	Upgrade	$ 25	$ 75	$ 50
Air Conditioner: Refrig. Charge (HERS)	Upgrade	$ 150	$ 200	$ 175
R-6 Attic Ducts	-	$ -	$ -	$ -
Reduced Duct Leakage/Testing (HERS)	-	$ -	$ -	$ -
50 Gallon Gas Water Heater: EF=0.60	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 1,578**	**$ 2,443**	**$ 2,011**
Total Incremental Cost per Square Foot:		**$ 0.78**	**$ 1.21**	**$ 0.99**

15% Better Than Title 24 Base Case, Option 2 **2025 sf** **Climate Zone 2**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-21 Walls (from R-13): 2,550 sf @ $0.70 to $0.95/sf	Upgrade	$ 1,785	$ 2,423	$ 2,104
R-0 Slab on Grade	-	$ -	$ -	$ -
R-19 Raised Floor over Garage/Open at 2nd Floor	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
Furnace: 80% AFUE	-	$ -	$ -	$ -
Air Conditioning: 13 SEER	-	$ -	$ -	$ -
R-6 Attic Ducts	-	$ -	$ -	$ -
Reduced Duct Leakage/Testing (HERS)	-	$ -	$ -	$ -
50 Gallon Gas Water Heater: EF=0.60	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 1,785**	**$ 2,423**	**$ 2,104**
Total Incremental Cost per Square Foot:		**$ 0.88**	**$ 1.20**	**$ 1.04**

15% Better Than Title 24 Base Case, Option 1 **2682 sf** **Climate Zone 2**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-30 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-19 Walls (from R-13): 2,638 sf @ $0.55 to $0.85/sf	Upgrade	$ 1,451	$ 2,242	$ 1,847
R-19 Floor	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
Furnace: 80% AFUE	-	$ -	$ -	$ -
Air Conditioner: 13 SEER, 11 EER (HERS)	Upgrade	$ 25	$ 75	$ 50
Air Conditioner: Refrig. Charge (HERS)	Upgrade	$ 150	$ 200	$ 175
R-6 Attic Ducts	-	$ -	$ -	$ -
Reduced Duct Leakage/Testing (HERS)	-	$ -	$ -	$ -
50 Gallon Gas Water Heater: EF=0.60	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 1,626**	**$ 2,517**	**$ 2,072**
Total Incremental Cost per Square Foot:		**$ 0.61**	**$ 0.94**	**$ 0.77**

15% Better Than Title 24 Base Case, Option 2 **2682 sf** **Climate Zone 2**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier (from R-30): 1,402sf @ 0.40 to 0.60/sf	Upgrade	$ 561	$ 841	$ 701
R-15 Walls (from R-13): 2,638 sf @ $0.12 to $0.20/sf	Upgrade	$ 317	$ 528	$ 422
R-19 Floor	-	$ -	$ -	$ -
Quality Insulation Installation (HERS)	Upgrade	$ 450	$ 600	$ 525
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
Furnace: 90% AFUE (from 80% AFUE)	Upgrade	$ 500	$ 1,000	$ 750
Air Conditioner: 13 SEER	-	$ -	$ -	$ -
R-6 Attic Ducts	-	$ -	$ -	$ -
Reduced Duct Leakage/Testing (HERS)	-	$ -	$ -	$ -
50 Gallon Gas Water Heater: EF=0.62 (from EF=0.60)	Upgrade	$ 100	$ 200	$ 150
Total Incremental Cost of Energy Efficiency Measures:		**$ 1,928**	**$ 3,169**	**$ 2,548**
Total Incremental Cost per Square Foot:		**$ 0.72**	**$ 1.18**	**$ 0.95**

15% Better Than Title 24 Base Case, Option 3 **2682 sf** **Climate Zone 2**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-30 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-21 Walls (from R-13): 2,638 sf @ $0.70 to $0.95/sf	Upgrade	$ 1,847	$ 2,506	$ 2,177
R-19 Floor	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
Furnace: 80% AFUE	-	$ -	$ -	$ -
Air Conditioner: 13 SEER	-	$ -	$ -	$ -
R-6 Attic Ducts	-	$ -	$ -	$ -
Reduced Duct Leakage/Testing (HERS)	-	$ -	$ -	$ -
50 Gallon Gas Water Heater: EF=0.62 (from EF=0.60)	Upgrade	$ 100	$ 200	$ 150
Total Incremental Cost of Energy Efficiency Measures:		**$ 1,947**	**$ 2,706**	**$ 2,327**
Total Incremental Cost per Square Foot:		**$ 0.73**	**$ 1.01**	**$ 0.87**

2.2 Low-rise Multi-family Building

Energy design description of the low-rise residential building which just meets the 2008 Title 24 Building Energy Efficiency Standards:

Low-rise Multi-family Residential: 2-story 8,442 square feet, 8 units, 12.5% glazing

Energy Efficiency Measures
R-38 Roof w/ Radiant Barrier
R-15 Walls
R-0 Slab on Grade
Low E2 Vinyl Windows, U=0.36, SHGC=0.30
(8) Furnaces: 80% AFUE
(8) Air Conditioners: 13 SEER
R-8 Attic Ducts
(8) 40 Gallon Gas Water Heaters: EF=0.63

Energy Measures Needed to Meet the County's Ordinance

The following energy features have been modified from the Title 24 set of measures so that the house design uses 15% less TDV energy than the corresponding Title 24 base case design per the 2008-2011 GreenPoint Rated minimum energy requirement. The incremental first cost to provide that measure in comparison with the equivalent base case measure is listed to the right.

The incremental energy improvements specified above to meet the proposed Ordinance requirements are variables selected by designer, builder or owner. There are a number of considerations in choosing the final mix of energy measures including first cost, aesthetics, maintenance and replacement.

15% Better Than Title 24 Base Case, Option 1 **8442 sf** **Climate Zone 2**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-21 Walls (from R-15): 10,146 sf @ $0.50 to $0.75/sf	Upgrade	$ 5,073	$ 7,510	$ 6,292
R-0 Slab on Grade	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
(8) Furnaces: 80% AFUE	-	$ -	$ -	$ -
(8) Air Conditioner: 13 SEER, 11 EER (HERS)	Upgrade	$ 200	$ 600	$ 400
(8) Air Conditioner: Refrig. Charge (HERS)	Upgrade	$ 1,200	$ 1,600	$ 1,400
R-8 Attic Ducts	-	$ -	$ -	$ -
(8) 40 Gallon Gas Water Heaters: EF=0.63	-	$ -	$ -	$ -
Total Incremental Cost of Energy Efficiency Measures:		**$ 6,473**	**$ 9,710**	**$ 8,092**
Total Incremental Cost per Square Foot:		**$ 0.77**	**$ 1.15**	**$ 0.96**

15% Better Than Title 24 Base Case, Option 2 **8442 sf** **Climate Zone 2**

Energy Efficiency Measures	Change Type	Incremental Cost Estimate		
		Min	Max	Avg
R-38 Roof w/ Radiant Barrier	-	$ -	$ -	$ -
R-19 Walls (from R-15): 10,146 sf @ $0.45 to $0.75/sf	Upgrade	$ 4,566	$ 7,610	$ 6,088
R-0 Slab on Grade	-	$ -	$ -	$ -
Low E2 Vinyl Windows, U=0.36, SHGC=0.30	-	$ -	$ -	$ -
(8) Furnaces: 80% AFUE	-	$ -	$ -	$ -
(8) Air Conditioners: 13 SEER	-	$ -	$ -	$ -
R-4.2 Attic Ducts (from R-8)	Downgrade	$ (3,000)	$ (2,000)	$ (2,500)
Reduced Duct Leakage/Testing (HERS)	Upgrade	$ 2,000	$ 4,000	$ 3,000
(8) 40 Gallon Gas Water Heaters: EF=0.62 (from 0.63 EF)	Downgrade	$ -	$ (400)	$ (200)
Total Incremental Cost of Energy Efficiency Measures:		**$ 3,566**	**$ 9,210**	**$ 6,388**
Total Incremental Cost per Square Foot:		**$ 0.42**	**$ 1.09**	**$ 0.76**

2.3 High-rise Multi-family Building

Energy design description of the high-rise residential building which just meets the 2008 Title 24 Building Energy Efficiency Standards:

High-rise Residential: 4-story 36,800 sq. ft., 40 units, Window Wall Ratio = 35.2%

36,800 SF 5-story building 2008 Title 24 Base Case, **35.2% Window Wall Ratio glazing** area, 40 dwelling units:

- R-38 attic insulation w/ cool roof Reflectance=0.70, Emittance=0.75
- R-19 in metal frame exterior walls
- R-6 raised slab floor over parking garage;
- Dual vinyl NFRC-rated Low-E windows: U-factor=0.36, SHGC=0.35
- Split heat pump for each dwelling unit: HSPF=7.2, EER=10.2
- Central domestic hot water boiler, 82.7% AFUE; re-circulating system w/ timer and temperature controls; variable speed drive hot water pump

High-rise Residential Energy Measures Needed to Meet the County's Ordinance

Option A: Reduction in 2008 T24 TDV Energy by 15%:

• Super Low-E Vinyl Windows U=0.36, SHGC=0.25; 6,240 sf @ $1.40 - $1.60/sf	$ 8,736 - 9,984
• R-8 (1" added) K-13 spray-on insulation under raised floor 9,200 sf @ $0.40 - $0.60/sf	$ 3,680 - 5,520
• Premium efficiency DHW pump	$ 150 - 250
• (80) Room PTACs: HSPF=7.84, EER=11.2 (No Ducts) @ $150 - $250/unit	$ 12,000 - 20,000
Total incremental cost of Ordinance energy measure:	**$ 24,566 - 35,754 Avg = $30,160**
Incremental cost in $/sq.ft.:	**$ 0.67 to $0.97/sq.ft. Avg = $0.82 /sf**

Option B: Reduction in 2008 T24 TDV Energy by 15%:

• Super Low-E Vinyl Windows U=0.36, SHGC=0.25; 6,240 sf @ $1.40 - $1.60/sf	$ 8,736 - 9,984
• (2) Munchkin boilers @ 1,500 – 2,500 each	$ 3,000 - 4,000
• R-19+R-5 exterior wall insulation; 11,472 sf @ $5.00 - $8.00/sf	$ 57,360 - 91,776
Total incremental cost of Ordinance energy measure:	**$ 69,096 - 105,760 Avg = $87,428**
Incremental cost in $/sq.ft.:	**$ 1.88 to $2.87/sq.ft. Avg = $2.38 /sf**

3.0 Cost Effectiveness

The summary of results in this section are based upon the following assumptions:

- Incremental site electriCounty (kWh) and natural gas (therms) saved per year as calculated using the state-approved energy compliance software for the 2008 Building Energy Efficiency Standards, a research version of Micropas 8.

- Average utility rates of $0.163/kWh for electriCounty and $1.30/therm for natural gas in current constant dollars

- The assumption of no change (i.e., no inflation or deflation) of utility rates in constant dollars over time

- The assumption of no increase in summer temperatures, even though recent scientific studies suggest that global climate change will increase temperatures in the Western U.S. which in turn will increase air conditioning energy use

The Simple Payback data includes a cost-effectiveness analysis of the Ordinance with respect to each case study building design and assumes:

- No external cost of global climate change -- and corresponding value of additional investment in energy efficiency and CO2 reduction – is included

- The cost of money invested in the incremental cost of energy measures is not included.

3.1 New Single Family Houses

Building Description	Total Incremental First Cost ($)	Net Incremental Annual Energy Cost Savings ($)	Simple Payback (years)
2,025 sf (Opt1-15%)	$2,011	$154	13.1
2,025 sf (Opt2-15%)	$2,104	$161	13.1
Averages:	$2,057	$157	13.1

Annual Reduction in CO2-equivalent: 0.51 lbs./sq.ft.- year

Building Description	Average Incremental First Cost ($)	Net Incremental Annual Energy Cost Savings ($)	Simple Payback (years)
2,682 sf (Opt1-15%)	$2,072	$176	11.8
2,682 sf (Opt2-15%)	$2,549	$198	12.8
2,682 sf (Opt3-15%)	$2,327	$188	12.4
Averages:	$2,316	$187	12.3

Annual Reduction in CO2-equivalent: 0.47 lbs./sq.ft.- year

3.2 Low-rise Multi-family Building

Building Description	Average Incremental First Cost ($)	Net Incremental Annual Energy Cost Savings ($)	Simple Payback (years)
8,442 sf (Opt1-15%)	$8,089	$591	13.7
8,442 sf (Opt2-15%)	$6,388	$604	10.6
Averages:	$7,238	$598	12.1

Annual Reduction in CO2-equivalent: 0.46 lbs./sq.ft.- year

3.3 High-rise Multi-family Building

Building Description	Average Incremental First Cost ($)	Net Incremental Annual Energy Cost Savings ($)	Simple Payback (years)
36,800 sf (Opt1-15%)	$30,160	$2,287	13.2
36,800 sf (Opt2-15%)	$87,428	$1,883	46.4
Averages:	$58,794	$2,085	29.8

Annual Reduction in CO2-equivalent: 0.19 lbs./sq.ft.- year

Conclusions

Regardless of the building design, occupancy profile and number of stories, the incremental improvement in overall annual energy performance of buildings under the Sonoma County Green Building Ordinance and the 2008 Title 24 Building Energy Efficiency Standards is cost-effective. However, each building's specific design, occupancy type and the design choices may allow for a large range of incremental first cost and payback. As is the case in just meeting the requirements of the Title 24 energy standards, a permit applicant complying with the energy requirements of the Sonoma County Green Building Ordinance should carefully analyze building energy performance to reduce incremental first cost and reduce the payback for the required additional energy measures.

ORDINANCE NO.

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SONOMA, STATE OF CALIFORNIA, ADDING CHAPTER 7D1, "GREEN BUILDING," TO THE SONOMA COUNTY CODE TO INCORPORATE GREEN BUILDING REQUIREMENTS

The Board of Supervisors of the County of Sonoma, State of California, ordains as follows:

SECTION I. Chapter 7D1 "Green Building" of the Sonoma County Code is hereby added as follows:

(a) Section 7D1-1, Purpose, is added to read:

Sec. 7D1-1. Purpose.

The purpose of this Chapter is to promote the public health, safety and welfare, by assuring that residential, commercial, and civic development is consistent with the County's goals of supporting and promoting a more sustainable community by incorporating green building measures into the design, construction and maintenance of buildings. The green building measures included in this Chapter are designed to achieve the following goals:

(1) Promote water and resource conservation;
(2) Reduce waste generated by construction projects;
(3) increase energy efficiency in buildings;
(4) provide durable buildings that are efficient and economical to own and operate;
(5) Promote the general health and welfare of the citizens of and visitors to the County.

(b) Section 7D1-2, Application, is added to read:

7D1-2 Application.

(A) The provision of this Chapter shall apply to the construction of any new residential or commercial building(s) within the County, not otherwise identified as an exempt building in this chapter, for which a building permit, as required, has been applied and accepted as complete by the County's building division on or after the effective date of this chapter.

(B) Neither this chapter, nor any resolution adopted to implement the provisions of this Chapter, shall affect the permissible use of property, density or intensity of development, design or improvement standards or other applicable standards required under this Code or by state law, all of which shall continue to apply and remain in full force and effect.

(C) The following buildings or projects are exempt from the requirements of this chapter:

(1) Any building for which a building permit application has been submitted to the County meeting the standards for building permit acceptance by the County's Permit and Resource Management Department prior to the effective date of this chapter, unless any such applications expire prior to issuance of a building permit; and
(2) Any repair, remodel or renovation of any building, including but not limited to tenant improvements, re-roofing of any building, repair of any structure damaged as a result of force majuer, barrier removal projects for accessibility, and seismic retrofit projects. repa; and
(3) Swimming Pools; and
(4) Any residential addition or expansion; and
(5) Any construction for which an infeasibility exemption is granted pursuant to section 7D1-8 of this chapter

(D) In the event that any provision in this Chapter conflicts with state law, state law shall control.

(c) Section 7D1-3, Definitions, is added to read:

7D1-3 Definitions.

For the purposes of this chapter, certain words and terms are defined as follows:

(A) "Applicant" shall mean any individual, firm or any other entity that applies to the County for the applicable permits to undertake any construction within the County.
(B) "Green Building Rater" shall mean a person or organization qualified as an approved special inspector by the County, which shall include certification by the applicable green building rating system body to perform inspections and provide documentation related to the inspection and verification of buildings covered by this chapter.
(C) "Building" shall have the meaning set forth in the California Energy Code, except that it shall not be deemed to include existing commercial or industrial buildings that are newly conditioned.
(D) "Green Building Documentation" shall mean all documentation required by a green building rating system indicating the compliance threshold level required by the County has been achieved. Green building documentation includes specific requirements as set forth in this chapter and by resolution.
(E) "Compliance Threshold" shall mean the minimum number of points or rating level within a green building rating system that must be attained for a particular covered building type.

(F) "Final Inspection" shall mean the final inspection and approval required by the California Building Code when a building is completed and ready for occupancy and use.
(G) "Compliance Official" shall mean the County's Chief Building Official or his or her designee who is responsible for enforcing this chapter.
(H) "Green Building" shall mean a whole systems approach to the design, construction, and operation of buildings and structures that helps mitigate the environmental, economic, and social impacts of construction, demolition and renovation. Green building practices recognize the relationship between natural and built environments and seek to minimize the use of energy, water, and other natural resources and provide a healthy, productive indoor environment.
(I) "Green Building Project Checklist" shall mean a checklist or scorecard developed for the purpose of calculating a green building rating.
(J) "Green Building Rating" means the point or performance threshold proposed or achieved for the respective rating system used for a covered building.
(K) "Green Building Rating System" shall mean the rating system associated with a specific guideline, set forth by resolution that is used to determine compliance thresholds.
(L) "Green Building Worksheet" shall mean a worksheet or form developed by the County that specifies information to be submitted with an application for a building permit for a building subject to this chapter. The green building worksheet will specify the form and content of the required documentation.
(M) "County Certified" shall mean a building(s) where a LEED® Accredited Professional working with the applicant on the building(s) has submitted green building documentation to the County's Building Official setting forth the measures that will be taken to achieve compliance with the requirements of this chapter and, following completion of the building(s), a LEED® Accredited Professional has provided certification that the building(s) has met the applicable compliance threshold pursuant to the applicable green building rating system under this chapter. The LEED® Accredited Professional for purposes of providing county certification pursuant to this chapter need not be qualified as a special inspector with the County.
(N) "Stop Order" shall mean a written notice to stop work, as defined in the California Building Code, which is served by the County's Building Official on any person engaging in work contrary to the provision of this Code.
(O) "Structure" shall mean that which is built or constructed, an edifice or building of any kind or any piece of work artificially build or composed of parts joined together in some definite manner and permanently attached to the ground, as defined in the California Building Code.
(P) "LEED® Accredited Professional" shall mean any person who has earned a credential as a LEED® Accredited Professional from the U.S. Green Building Council in accordance with their standards and requirements.

(d) Section 7D1-4, Compliance, is added to read:

7D1-4 Compliance.

(A) The County's Chief Building Official or designee will be charged with enforcing the provisions of this chapter. A building permit subject to the provisions of this chapter shall not be issued by the County's Permit and Resource Management's Building Division unless the required green building documentation submitted with the permit application meets the requirements of this chapter. A final inspection for a building permit subject to the requirements of this chapter will not be approved unless the work authorized under a permit has been constructed in accordance with the plans and requirements of this chapter.

(B) The green building guidelines, rating systems and compliance thresholds for all buildings subject to the provisions of this chapter shall be established by Resolution of the Board of Supervisors. All buildings subject to the provisions of this chapter shall be constructed and maintained using the green building guidelines and ratings systems as adopted by Resolution.

(e) Section 7D1-5, Green Building Documentation: Submission with Building Permit Application, is added to read:

7D1-5 Green Building Documentation; Submission with Building Permit Application.

In conjunction with an application for issuance of a building permit for any building covered by this chapter, the applicant shall submit documents indicating how compliance with this chapter will be achieved. The green building documentation shall include the green building checklist from a green building rater providing that (i) the applicant has taken into account the requirements of this chapter in the planning process; and (ii) if the building is built in conformance with the building plans, including the items identified in the green building documentation, the building will achieve the standards required by this chapter. The green building documentation shall include a verification plan noting how each green building measure or provision will be verified through visual inspections, documentation, or other means during construction.

(f) Section 7D1-6, Verification, is added to read:

7D1-6 Verification.

(A) The green building rater shall verify that the green building measures and provisions indicated in the green building documentation are being implemented through inspections during the construction of the building. In lieu of, or in addition to visual inspections, the applicant may submit documents, such as purchase receipts, verifying that green building measures and provisions have been implemented.

(B) If at any time during the construction of a building, the compliance official determines that the building(s) does not comply with any portion of the green building documentation, a stop-work order may be issued. At the discretion of the compliance official, the stop-work order may apply to the portion of the building(s) that is not in compliance or to the entire building(s). The stop-work order shall remain in effect until the compliance official determines that the building(s) is in compliance with the green building documentation and the provisions of this chapter.

(C) During the verification process for any building, flexibility may be exercised by the green building rater in communication with the compliance official to substitute the approved credits or points of the green building documentation for the building with other credits or points allowed within the approved rating system, as applicable. Substitution may occur upon the reasonable request of the applicant and when the green building rater determines and documents that the originally approved credits are no longer feasible or the substitute credits are an equivalent or a superior alternative to the original credits. Substitution of credits or points shall in no event result in a building not achieving compliance with the established compliance thresholds for the building in effect at the time the building permit was issued.

(g) Section 7D1-7, Determination of Compliance, is added to read:

7D1-7 Determination of Compliance.

(A) Prior to approving a final inspection for a building(s) subject to the provisions of this chapter, the compliance official shall review the documentation submitted by the applicant, along with inspection records and certificates submitted by the green building rater(s), and determine whether the applicant has achieved the required compliance threshold. If the compliance official determines the applicant has met the requirements of this chapter, the compliance official shall make a final determination that the project is ready for a final inspection, provided the project has received approval of all inspections required by the California Building Code.

(B) If the compliance official determines that the building(s) is not in compliance with the green building documentation and has failed to meet the required compliance threshold, the compliance official will require additional green building measures to mitigate the noncompliance of the building(s). Mitigation measures may include, but are not limited to, landscaping the project to decrease water and energy consumption, use of energy-efficient fixtures and equipment, and education of the building's occupants and owners regarding on-going energy and resource savings techniques. If the mitigation measures are or will be implemented and appropriately documented to the satisfaction of the compliance official, a certificate of occupancy shall be issued.

(C) The compliance official may waive the initial review of green building documentation when he or she determines that review of the green building documentation can be carried out during the regular building permit plan review process, such as when multiple buildings of a subdivision are submitted at different times, but the buildings are very similar in nature.

(h) Section 7D1-8, Infeasibility Exemption, is added to read:

7D1-8 Infeasibility Exemption.

(A) If an applicant for a building permit covered by this chapter believes that circumstances exist that make it infeasible for the building(s) to meet the requirements of this chapter, the applicant may apply for an exemption as set forth in this section. In applying for an exemption, the burden is on the applicant to show infeasibility.

(B) If an applicant for a building permit covered by this chapter believes such circumstances exist, the applicant may apply for an exemption of one or more items on the green building project checklist at the time that he or she submits the green building documentation required under section 7D-5. The applicant shall indicate in the green building documentation the maximum number of credits or points he or she believes is feasible for the building(s) and the circumstances that he or she believes make it infeasible to fully comply with this chapter. An infeasibility exemption shall be made if any one of the following conditions exist:

(1) There is a lack of available or affordable green building raters; or
(2) There is a lack of commercially available green building materials and technologies; or
(3) There is conflict with the compatibility of the requirements of the green building rating system and the California Building Code; or
(4) The green building rating systems do not include enough green building measures that are compatible with the scope of the building.

(C) If the compliance official determines it is infeasible for the applicant to meet the requirements of this chapter based on the information provided, the compliance official shall return a copy of the green building documentation to the applicant marked "Approved with Exemption." If an exemption is granted, the applicant must still comply with this chapter in all other respects and shall be required to achieve the compliance threshold, less the credits or points that would have been achieved for the exempted items.

(D) If the compliance official de termines that it is possible fo r the applicant to fully meet the requirements of this chapter, the complian ce official shall so no tify the applicant in writing. The applicant may resubmit the gree n building docum entation in full com pliance with the requirem ents of this chapter. Anyone m ay appeal the determ ination of the compliance official to grant or deny an exem ption, pursuant to section 7D-9 of this chapter.

(i) Section 7D1-9, Appeal, is added to read:

7D1-9 Appeal.

(A) Any aggrieved applicant may appeal a determination made under this chapter to the County's Board of Building Appeals. An appeal is limited to the following issues: (1) compliance with this chapter pursuant to section 7D-7 of this chapter; (2) the granting or denial of an exemption pursuant to section 7D-8 of this chapter; and (3) the type or scope of mitigation measures required for noncompliance pursuant to section 7D-7 (B) of this chapter.

(B) Any appeal must be filed in writing with the board within fifteen (15) days from the date the decision or action of the building official was mailed or delivered, whichever is earlier, to the person to whom the decision or action is addressed. The appeal shall be in accordance with the requirements of chapter 7-4 of this County Code. In reviewing the appeal, the board may request additional written or oral information from the applicant or the compliance official.

(C) The determination by the Board of Building Appeals is final.

(D) Any appeal filed shall be subject to payment of fees by the applicant in accordance with the County's fee schedule in effect on the date that the appeal is filed.

(j) Section 7D1-10, Enforcement, is added to read:

7D1-10 Enforcement.

(A) In addition to any other rem edies provided in this artic le, any violation of this article m ay be enforced by civil acti on brought by the county. In any such action, the county may seek as appropriate, any or all of the following:

1) A temporary restraining order, preliminary and permanent injunction;
2) Reimbursement for the costs of any investigation, inspection or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and bringing administrative action under this article;
3) Costs incurred in removing, correcting, or terminating the adverse effect resulting from the violation.

(B) Cumulative Remedies. The foregoing remedy shall be deemed nonexclusive, cumulative and in addition to any other remedy the County may have at law or in equity, including but not limited to injunctive relief to prevent violations of this chapter.

(k) Section 7D1-11, Expiration, is added to read:

7D1-11 Expiration.

This chapter shall expire upon the date that the State's 2008 Building Energy Efficiency Standards are no longer in effect.

SECTION II. Severability. Should any section, subsection, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason, such declaration shall not affect the validity of the remaining portions of this ordinance.

SECTION III. Environmental Compliance. (a) This ordinance is exempt from the California Environmental Quality Act ("CEQA") pursuant to Sections 15307 and 15308 of the State CEQA Guidelines as an action taken to assure the maintenance, restoration, enhancement, and protection of natural resources and the environment where the regulatory process involves procedures for protection of the environment, and pursuant to Section 15061(b)(3) of the State CEQA Guidelines because it can be seen with certainty that there is no possibility that this ordinance may have a significant effect on the environment. The basis for this determination is that this ordinance does not in itself approve any construction activities, but instead establishes standards, permit requirements, and other measures that regulate development more stringently than existing codes. These standards, permit requirements, and other measures will not result in any direct physical change to the environment on their own, and will instead assure the maintenance, restoration, enhancement, and protection of natural resources and the environment by strengthening existing environmental standards and establishing new limitations. The Director of the Permit and Resource Management Department is directed to file a notice of exemption in accordance with CEQA and the State CEQA Guidelines.

SECTION IV The provisions of this code shall not be construed as imposing upon the County of Sonoma any liability or responsibility for damages to persons or property

resulting from defective work, nor shall the County of Sonoma, or any official, employee or agent thereof, be held as assuming any such liability or responsibility by reason of the review or inspection authorized by the provisions of this Code of any permits or certifications issued under this Code.

SECTION V The ordinance shall be and the same is hereby declared to be in full force and effect on _____. The ordinance shall be published once before the expiration of fifteen (15) days after its passage, with the names of the Supervisors voting for or against the same, in a newspaper of general circulation published and circulated in the County of Sonoma.

In regular session of the Board of Supervisors of the County of Sonoma introduced on the 21st day of July, 2009, and finally passed and adopted this ___th day of _____, on regular roll call of the members of said Board by the following vote:

SUPERVISORS:

BROWN _____ KERNS _____ ZANE _____ CARRILLO _____ KELLEY _____

AYES _____ NOES _____ ABSTAIN _____ ABSENT _____

SO ORDERED

_____
Chair, Board of Supervisors

ATTEST:

_____
Sheri Hartz, Deputy Clerk of the Board of Supervisors

COUNTY OF SONOMA
PERMIT AND RESOURCE MANAGEMENT DEPARTMENT
2550 Ventura Avenue, Santa Rosa, CA 95403-2829
(707) 565-1900 FAX (707) 565-1103

July 23, 2009

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Sonoma County Green Building Ordinance and the Building Energy Efficiency Standards

The County of Sonoma County has adopted a local green building ordinance which mandates that new residential construction meet more stringent energy requirements than the 2008 Title 24 Building Energy Efficiency Standards. The County is committed to ensuring that the building department makes a special effort to train plan checkers and field inspectors who will fully enforce the state's energy standards as well as the green building ordinance.

Very truly yours,

DeWayne Starnes P.E.
Deputy Director, Chief Building Official
Sonoma County PRMD
707-565-1925